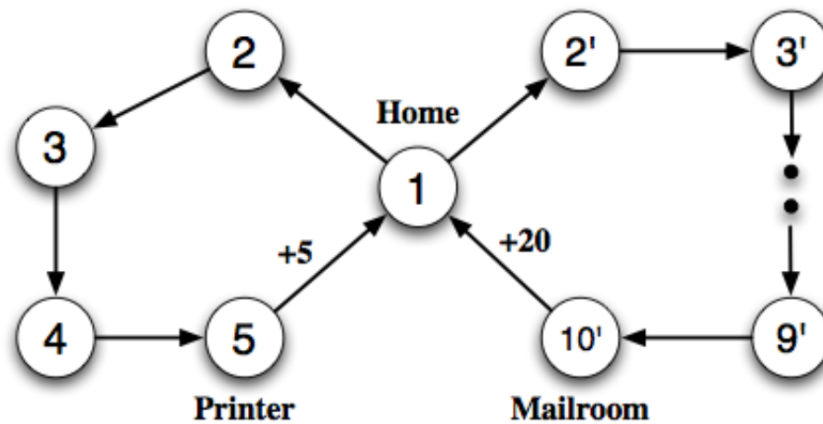


## MODEL-BASED UNDISCOUNTED MDPS

### I TP Part A Average and Discounted optimality

Consider the following Deterministic MDP:



1. What are the stationary deterministic policies for this MDP?
2. For each of them, what is the  $\gamma$ -discounted value at state 1 ?
3. For which values of  $\gamma \in [0, 1)$  is it optimal to move to the mail room?
4. For which values of  $\gamma \in [0, 1)$  is it optimal to move to the printer?
5. A strategy is Blackwell optimal if there exists  $\gamma_0$  such that  $\pi$  is optimal for all  $\gamma \in [\gamma_0, 1)$ . does this problem have any Blackwell optimal strategy?
6. For each policy, what is the average value in state 1 ? Which policy is optimal for this criterion ?
7. For what range of values of  $\gamma$  does the  $\gamma$ -discounted optimal agent selects a policy optimal for the average value?